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July 17, 1992

Ms. Donna R. Searcy

Secretary

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Federal Communications Commission

Room 222

1919 M Street, N.W.

Washington, D.C. 20554

Federal Communications community Office of the Secretary

Re:

Comments on Second Report and Order/Further

Notice of Proposed Rule Making

Dear Ms. Searcy:

Enclosed herewith are five copies (original and four) of the comments by this firm, "In the Matter of Advanced Television Systems and Their Impact Upon the Existing Television Service, Second Report and Order/Further Notice of Proposed Rule Making (Docket 87-268)".

If there are any questions, please do not hesitate to contact this office.

Sincerely,

COHEN, DIPPELL AND EVERIST, P.C.

Donald G. Everist

Secretary-Treasurer

DGE:mcw **Enclosure**

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Before The FEDERAL COMMUNICATIONS COMMISSION Washington, D.C.

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In the Matter of)	Federal Communications Commussion Office of the Secretary
Advanced Television Systems and Their Impact Upon The)	MM Docket No. 87-268
Existing Television Broadcast)	FCC 92-174
Service)	

COHEN, DIPPELL AND EVERIST, P.C. COMMENTS ON SECOND REPORT AND ORDER/ FURTHER NOTICE OF PROPOSED RULE MAKING

Introduction

Cohen, Dippell and Everist, P.C. Consulting Engineers ("CDE"), offers the following comments on the FCC Second Report and Order/Further Notice of Proposed Rule Making ("Order/FNPRM") adopted April 9, 1992. CDE and its predecessors have practiced before the Federal Communications Commission ("FCC") for more than fifty (50) years, representing the broadcasting industry on professional engineering matters. The FCC has reached certain decisions concerning eligibility, application and construction timetables, non-commercial allotments in congested areas, low-power television, ATV conversion, and simulcasting requirements; etc. The Order/FNPRM solicits comments on certain aspects of these important issues.

Last year, in response the Notice of Proposed Rule Making¹, CDE identified critical parameters² which we believe are essential to ATV development and implementation³. CDE has now undertaken further studies in these related areas. These efforts have focused on several TV allotment scenarios—the first in the Washington-Baltimore area, the second in Detroit which is adjacent to Canada and the third in San Diego which is adjacent to Mexico.

The allotment assumptions used by CDE in these studies are those advanced by the FCC in its Tentative Decision and Further Notice of Inquiry ("Tentative Decision") adopted September 1, 1988. Basically, the FCC assumed co-channel and first-adjacent channel ATV/NTSC spacings of 160 and 96 km, respectively, no impairment to the public's reception of existing NTSC stations, and no increased interference to existing NTSC stations relative to that now present. Moreover, the FCC assumed there would be additional flexibility by reducing or eliminating many or all of the current so-called "UHF taboos". However, no FCC assumptions were disclosed, for which we are aware, regarding ATV power and antenna height restrictions that it considered to be consistent with these assumptions.

It is recognized that these spacing assumptions are subject to modification once all tests by the Advanced Television Test Center (ATTC) and the proposed field tests by the Advanced Television Service Committee have been completed. However, we believe it is instructive to

^{1/}Adopted October 24, 1991 in MM Docket No. 87-268, FCC 91-337

Three broad categories were developed -- allotments, transition and propagation.

³Comments by Cohen, Dippell and Everist, P.C. to the Notice of Proposed Rule Making Concerning Advanced Television Systems dated December 20, 1991.

further study the impact of these FCC assumptions in selected metropolitan areas in order to assess how certain aspects of the decision-making process may need to be altered in the future.

Washington-Baltimore Area

If each station operating in the Greater Washington-Baltimore metropolitan area is to receive an ATV channel, we note that twenty-one (21) new ATV channels will be required. Using the FCC allotment assumptions discussed above and the FCC reference coordinates for these two cities, we find that the maximum number of ATV channels that can be assigned to this combined area is only twelve (12) channels, if first-adjacent channels are assigned alternately to Washington and Baltimore.

We believe assigning first-adjacent channels for ATV in neighboring markets would be undesirable for a final ATV plan⁴. If first-adjacent channels are precluded in the same market, there are only nine unencumbered frequencies available in the Washington-Baltimore area. Expanding this study to take into account actual operating NTSC sites in the outlying areas of the Greater Washington-Baltimore area, it appears that the number of unencumbered channels that might be allotted to the Washington-Baltimore market increases to approximately 11 channels.

This initial assessment for the provision of new ATV channels in the Washington-Baltimore area is not encouraging. It is recognized that if it is assumed that the ATV sites are

In order for an existing station to maintain its market share with the ATV facility, it is necessary that the ATV service area be similar to the existing NTSC service area. Furthermore, providing similar ATV and existing NTSC service areas will permit the station to retain its audience share. Each are essential ingredients to universal acceptance of ATV. This is especially true for two markets such as Washington-Baltimore spaced by less 60 km apart.

not to be collocated with the existing NTSC sites, greater flexibility may be provided. However, in many instances it may not be feasible to use separate sites for simulcasting ATV, particularly where the geographic separation between the sites is significant. This is so because of potentially disparate ATV service to the community of license and other service considerations. Additionally, it may not be possible to construct a new ATV facility at the separate site due to zoning and FAA airspace considerations. Furthermore, if it is ultimately determined through tests at the ATTC and field tests that the UHF taboos cannot be totally ignored, our assessment discussed above may be overly optimistic. For example, if the fourteenth and fifteenth (image) taboos are considered in the study the number of ATV channels available in Washington and Baltimore area diminishes rapidly⁵. The following appendices (Appendix 1 and Appendix 2) demonstrate vividly these ATV allotment scenarios for the Baltimore and Washington area.

Detroit, Michigan-Windsor, Ontario Area

For the Detroit-Windsor area, 14 new ATV channels will be required if each U.S. and Canadian NTSC allotment in the area is to be provided a companion ATV channel. In the Detroit area, using the same FCC assumptions as those used for the Washington-Baltimore area, the issues become far more complicated due to "Canadian" considerations. For example, if

^{5/}Under Appendix B of the Tentative Decision the FCC reported upon OET Technical Memorandum FCC/OET TM 88-2 Analysis of UHF TV Receiver Interference Immunities Considering Advanced Television. It is indicated, for example, that picture image (N+15) interference in the test receivers is approximately 14 dB to 20 dB worse than for first adjacent channel (N+1, N-1) interference.

There are no unused allotments in the Detroit area but there are 2 unused allotments in the Windsor area.

unused Canadian NTSC allotments must be protected, the maximum number of ATV channels that can be assigned to the area is only 1 channel. Further information is provided in Appendix 3.

If unused Canadian allotments are omitted from the study, only three non-adjacent candidate ATV channels (26,44 and 46) are available to split between the Detroit and Windsor markets.

San Diego, California-Tijuana, BN Area

For the San Diego-Tijuana area, 15 new ATV channels will be required if each existing NTSC allotment in the area is to be provided a new ATV channel. Using the same FCC assumptions discussed above, the maximum number of ATV channels that can be assigned to the combined area is only 11 channels, if protection to unused Mexican NTSC allotments is provided. Thus, it appears that insufficient ATV channels are available to assign to all allotments. However, if unused Mexican allotments are omitted from the study, all 8 San Diego-Tijuana area licensed stations could be allotted an ATV channel. Further information is provided in Appendix 4.

The San Diego market also demonstrates that ATV allotments cannot necessarily be made on the basis of distance alone. We note, for example, that many Los Angeles stations operate from elevated mountain sites with antenna radiation centers above the areas served far greater than that typical in the U.S. This results in Los Angeles signal coverage near San Diego greater

There are no unused allotments in the San Diego area but there are seven unused Mexican allotments within 60 km of San Diego.

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than the typical allotment situation. In effect, this places many predicted Los Angeles Grade B NTSC signals near San Diego. As a consequence, existing NTSC operations in the Los Angeles area may necessarily be an additional factor such as co-channel selection of ATV frequencies for San Diego. This is depicted in the table below. We believe that similar situations may exist in other mountainous areas.

CANDIDATE	ALLOTMENT COMMENTS				
ATV CHANNEL		STATION	CHANNEL	CITY/STATE	
4	Co-Channel	KNBC-TV	4	Los Angeles, CA	
18	Co-Channel	KSCI	18	San Bernardino, CA	
19	First-Adjacent	KSCI	18	San Bernardino, CA	
25	First-Adjacent	KVCR-TV	24	San Bernardino, CA	
30	Co-Channol	KZKI	30	San Bernardino, CA	
31	First-Adjacent	KZKI	30	San Bernardino, CA	
43	First-Adjacent	KRPA	44	Rancho Palos Verdes, CA	
47	First-Adjacent	KHSC	46	Ontario, CA	
53	First-Adjacent	KVEA	52	Corona, CA	
55	First-Adjacent	KDOC-TV	56	Anaheim, CA	
. 60		·			
62	Co-Channel	KRCA	62	Riverside, CA	
63	First-Adjacent	KRCA	62	Riverside, CA	
64	·				
65					

Summary

CDE stated its belief in its earlier Comments that for ATV to succeed it will be necessary to ensure that:

- 1. ATV service areas equivalent to those now provided by existing stations will be provided. Equivalent service area is envisioned as an acceptable signal for a distance from the transmitter site, including the City Grade contour, out to the Grade B contour and beyond;
- 2. the ATV signal will be easily received in the viewer's home without special and extraordinary measures.

For ATV to be universally accepted, we support the FCC's contention that all existing NTSC stations must be provided a meaningful opportunity for entry into the new service. The preliminary studies provided for these comments were intended to address the following related concerns:

- 1. availability of a sufficient number of ATV channels to permit each NTSC allotment to receive an ATV allotment;
- 2. the need to provide ATV service areas equivalent, to the extent possible, to that provided by existing NTSC stations;
- 3. the practicality of providing a new ATV channel collocated at each existing NTSC station site.

This initial study, using the FCC allocation criteria from the *Tentative Decision* in Docket 87-268, raises a serious question as to whether or not these objectives can be realized in all markets. Our initial study, which finds a potential shortfall of frequencies for the Greater Washington-Baltimore area, the Detroit-Windsor area and the San Diego-Tijuana area, suggests

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that an ATV service equivalent to that provided by NTSC may not necessarily be achieved within these areas without creating new interference to existing NTSC operations. Furthermore, the ATV channel allotment scenario in some instances may restrict the ATV allotments to areas unacceptably remote from the existing transmitter sites. If NTSC service is not to be impacted as we believe the FCC intends, it appears that it may be necessary to restrict some ATV facilities in order to protect existing NTSC operations.

All the above factors could significantly affect the very important matters including negotiated channel assignment and the conversion time to ATV and allotment and assignment issues.

Respectfully Submitted,

Donald G. Everist

Warren M. Powis

Wilson A. La Follette

Date: July 17, 1992

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APPENDIX 1 EXISTING ALLOTMENT SITUATION IN GREATER WASHINGTON-BALTIMORE AREA AND POTENTIAL AVAILABLE FREQUENCIES FOR ADVANCED TELEVISION BASED UPON FCC CRITERIA IN TENTATIVE DECISION JULY 1992

Channel	Major Allotment Constraints			
2	Co-Channel	WMAR-TV	Ch.2	Baltimore, MD
3	First-Adjacent Channel First-Adjacent Channel	WMAR-TV WRC-TV	Ch.2 Ch.4	Baltimore, MD Washington, DC
4	Co-Channel	WRC-TV	Ch.4	Washington, DC
5	Co-Channel	WTTG	Ch.5	Washington, DC
6	First-Adjacent Channel	WTTG	Ch.5	Washington, DC
7	Co-Channel	WJLA	Ch.7	Washington, DC
8	First-Adjacent Channel First-Adjacent Channel	WJLA WUSA	Ch.7 Ch.9	Washington, DC Washington, DC
9	Co-Channel	WUSA	Ch.9	Washington, DC
10	First-Adjacent Channel First-Adjacent Channel	WUSA WBAL-TV	Ch.9 Ch.11	Washington, DC Baltimore, MD
11	Co-Channel	WBAL-TV	Ch.11	Baltimore, MD
12	First-Adjacent Channel First-Adjacent Channel	WBAL-TV WJZ-TV	Ch.11 Ch.13	Baltimore, MD Baltimore, MD
13	Co-Channel	WJZ-TV	Ch.13	Baltimore, MD
14	Co-Channel	WTMW	Ch.14	Arlington, VA
15	First-Adjacent Channel	WTMW	Ch.14	Arlington, VA
16	First-Adjacent Channel	L-M ^{g/}	Ch.17	Washington, DC
17	Co-Channel	L-M	Ch.17	Washington, DC

^{✓ &}lt;sup>3</sup>L-M Land Mobile Channel.

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Channel	M	ajor Allotment (Constraints	
18	Co-Channel	L-M	Ch.18	Washington, DC
19	First-Adjacent Channel First-Adjacent Channel	L-M WDCA-TV	Ch.18 Ch.20	Washington, DC Washington, DC
20	Co-Channel	WDCA-TV	Ch.20	Washington, DC
21	First-Adjacent Channel First-Adjacent Channel	WDCA-TV WMPT	Ch.20 Ch.22	Washington, DC Annapolis, MD
22	Co-Channel	WMPT	Ch.22	Annapolis, MD
23	First-Adjacent Channel First-Adjacent Channel	WMPT WHSW	Ch.22 Ch.24	Annapolis, MD Baltimore, MD
24	Co-Channel	WHSW	Ch.24	Baltimore, MD
25	First-Adjacent Channel First-Adjacent Channel	WHSW WETA-TV	Ch.24 Ch.26	Baltimore, MD Washington, DC
26	Co-Channel	WETA-TV	Ch.26	Washington, DC
27	First-Adjacent Channel	WETA-TV	Ch.26	Washington, DC
28	Co-Channel	WCPB	Ch.28	Salisbury, MD
29				
30				
31	First-Adjacent Channel	WHMM	Ch.32	Washington, DC
32	Co-Channel	WHMM	Ch.32	Washington, DC
33	First-Adjacent Channel	WHMM	Ch.32	Washington, DC
34				
35				
36				
37	[Reserved for R	ladio Astronomy	y per Section 7	73.603(c).
38				
39				
40				

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Channel	M	ajor Allotment Const	traints	
41				
42	Co-Channel	BPET-880120KM	Ch.42	Front Royal, VA
43	Co-Channel	WPMT	Ch.43	York, PA
44	First-Adjacent Channel	WBFF	Ch.45	Baltimore, MD
45	Co-Channel	WBFF	Ch.45	Baltimore, MD
46	First-Adjacent Channel	WBFF	Ch.45	Baltimore, MD
47	Co-Channel	WMDT	Ch.47	Salisbury, MD
48				
49	First-Adjacent Channel	WFTY	Ch.50	Washington, DC
50	Co-Channel	WFTY	Ch.50	Washington, DC
51	First-Adjacent Channel	WFTY	Ch.50	Washington, DC
52	First-Adjacent Channel	WNVT	Ch.53	Goldvein, VA
53	Co-Channel	WNVT	Ch.53	Goldvein, VA
54	Co-Channel	WNUV-TV	Ch.54	Baltimore, MD
55	First-Adjacent Channel First-Adjacent Channel	WNUV-TV WNVC	Ch.54 Ch.56	Baltimore, MD Fairfax, VA
56	Co-Channel	WNVC	Ch.56	Fairfax, VA
57	First-Adjacent Channel	WNVC	Ch.56	Fairfax, VA
58				
59				
60	Co-Channel	WYVN	Ch.60	Martinsburg, WV
61	First-Adjacent Channel	WFPT	Ch.62	Frederick, MD
62	Co-Channel	WFPT	Ch.62	Frederick, MD
63	First-Adjacent Channel	WFPT	Ch.62	Frederick, MD
64	Co-Channel	WDPB	Ch.64	Seaford, DE
65	First-Adjacent Channel	WTKK	Ch.66	Manassas, VA

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Channel	M	ajor Allotment	Constraints	
66	Co-Channel	WTKK	Ch.66	Manassas, VA
67	Co-Channel	WMPB	Ch.67	Baltimore, MD
68	First-Adjacent Channel	WMPB	Ch.67	Baltimore, MD
69		•		

NOTES:

- I. Summary of potential ATV channels that meet 160 km co-channel and 96 km first-adjacent channel spacings:29,30,34,35,36,38,39,40,41,48,52,58,59,69.
- 2. Assuming that first-adjacent ATV to ATV channels are precluded in the same market area, potential ATV channels are: 30,34,36,38,40,48,52,58,69.
- 3. Number of existing NTSC stations in the greater Baltimore-Washington area: 21.
- 4. Potential channels that meet 160 km co-channel, 96 km first adjacent channel, 96 km +/- 14 channels and 120 km +/- 15 channels: 58 (Washington or Baltimore)

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APPENDIX 2

DETAILED BALTIMORE, MARYLAND/WASHINGTON, D.C. AREA ALLOTMENT STUDIES JULY 1992

There are 21 existing NTSC television stations (authorizations and licenses) in the greater Baltimore-Washington market. Using the FCC listed coordinates of 19 for Baltimore and Washington, television channelling studies were performed using the minimum distance spacings between NTSC stations and ATV allotments of 160 km co-channel and 96 km first-adjacent channel as assumed by the FCC in its Tentative Decision. All other spacing taboos (oscillator, image, intermodulation, etc.) required under Section 73.698 were ignored for the purposes of this study. The potential candidate ATV channels for both cities are as follows:

<u>Washington</u>	Baltimore
29	
30	30
34	34
35	
36	36
38	38
39	39

⁹/NTSC stations in this market exist on Channels 2,4,5,7,9,11,13,14,20,22, 24,26,32,45,50,53,54,56,62,66, and 67.

^{10/}Refer Section 76.53 for geographic coordinates.

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Washington	Baltimore
40	40
41	41
48	
	52
58	58
59	59
69	69

Assuming that Washington and Baltimore ATV channels must also meet the 96 km ATV to ATV first-adjacent channel spacings, only nine channels are available for use in the area; such as channels 30,34,36,38,40,48,52,58, and 69. Hence, only 9/21 or 43% of the existing NTSC stations would obtain an ATV channel on this basis.

Since two sets of TV channels in this market area are located on first-adjacent channels to each other, a similar criteria could be used between their respective ATV channels. Hence, two additional ATV channels such as 39 and 41 could be added to provide a total to 11/21 or 52% of needed ATV channels for existing NTSC stations. This situation still reflects a severe spectrum shortage in this area. Further, the use of first-adjacent channels between Baltimore and Washington is undesirable for a final ATV plan, particularly after NTSC channels are relinquished.

Additional studies were performed to identify channels that could be assigned to area NTSC stations located within 60 km of the Washington, DC and Baltimore, MD reference geographic coordinates. Maps showing 160 km co-channel and 96 km first-adjacent

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channel constraints for candidate ATV channels are contained in this Appendix. The following additional candidate ATV channels were found:

			Potential Additional
<u>Call</u>	Market Area	Channel	ATV Channels ¹¹
WMPT	Baltimore	22	29,35
WNVT	Washington	53	28,44,46
WFPT	Washington	62	28
WTKK	Washington	66	None
WMPB	Baltimore	67	None

As a result, WNVT could be allotted Channel 44 and WFPT could be allotted Channel 28 for their ATV channels. Hence, the potential ATV channels for the Greater Washington-Baltimore area which meet ATV-ATV first adjacent channel spacings could be 28 (WFPT), 30,34,36,38,40,44 (WNVT), 48,52,58 and 69. Since two channels are uniquely assignable to WNVT and WFPT, this leaves 9 ATV channels to be shared among the 19 other existing NTSC stations.

If the N+14 and N+15 image taboos for existing NTSC operations are considered, only one ATV channel (Channel 58) in the entire market area can be assigned.

^{11/}Channels not otherwise included in market area study

APPENDIX 3

INTERNATIONAL CONSIDERATIONS-CANADA JULY 1992

International border areas near Canada will require careful consideration in order to afford protection between Canadian and U.S. NTSC television stations. In addition, since NTSC Canadian allotments are not as fully utilized as United States allotments, the requirement to pair ATV allotments with each unused Canadian allotment should be considered.

In the Detroit, Michigan, area, there are 14 existing allotments^{12/} within 60 km of the Detroit reference geographic coordinates.^{13/} Using these coordinates and minimum distance spacing criteria of 160 km co-channel and 96 km first-adjacent channel as assumed by the FCC in its <u>Tantative Decision</u>, potential candidate ATV channels are 44 and 45. Assuming that Detroit area ATV stations must also meet the 96 km ATV to ATV spacing, only one channel is available for use in the area. Hence, only 1/14 or 7% of the area allotments could be paired with an ATV channel based on the Detroit geographic coordinates. If unused Canadian allotments are ignored, there are twelve existing television stations within 60 km of the Detroit reference coordinates (Channels 26 and 60 are unused Windsor, Ontario allotments). On this basis, potential candidate ATV channels are 26,44,

^{12/}United States NTSC stations and Canadian NTSC stations and allotments in the Detroit, Michigan/Windsor, Ontario, area exist on Channels 2,4,7,9,20,22,26,32 38,58,54,56,60, and 62.

 $[\]frac{13}{\text{Refer}}$ Section 76.53 of the FCC Rules for geographic coordinates.

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45 and 46. If the N+14 and N+15 image taboos are considered, only one ATV channel (Channel 26) can be assigned.

APPENDIX 4

INTERNATIONAL CONSIDERATIONS-MEXICO JULY 1992

International border areas near Mexico will require careful consideration in order to afford protection between Mexican and U.S. television stations. In addition, since Mexican NTSC allotments are not as fully utilized as United States allotments, the need to pair ATV allotments with each unused Mexican allotment should be considered.

In the San Diego, California, area, there are 15 (14 existing and 1 pending) allotments within 60 km of the San Diego reference geographic coordinates. Using these coordinates and minimum distance spacing criteria of 160 km co-channel and 96 km first-adjacent channel as assumed by the FCC in its <u>Tentative Decision</u>, potential candidate ATV channels are 4,18,19,25,30,31,43,47,53,55,60,62,63,64 and 65. Assuming that the San Diego area ATV stations must also meet the 96 km ATV to ATV spacing, only 11 channels are available for use in the area. Hence, only 11/15 or 73% of the area allotments would be paired with an ATV channel based on the San Diego geographic coordinates. If unused Mexican allotments are ignored there are eight existing television stations within 60 km of the San Diego reference coordinates (Channels 21, 27, 33, 45,

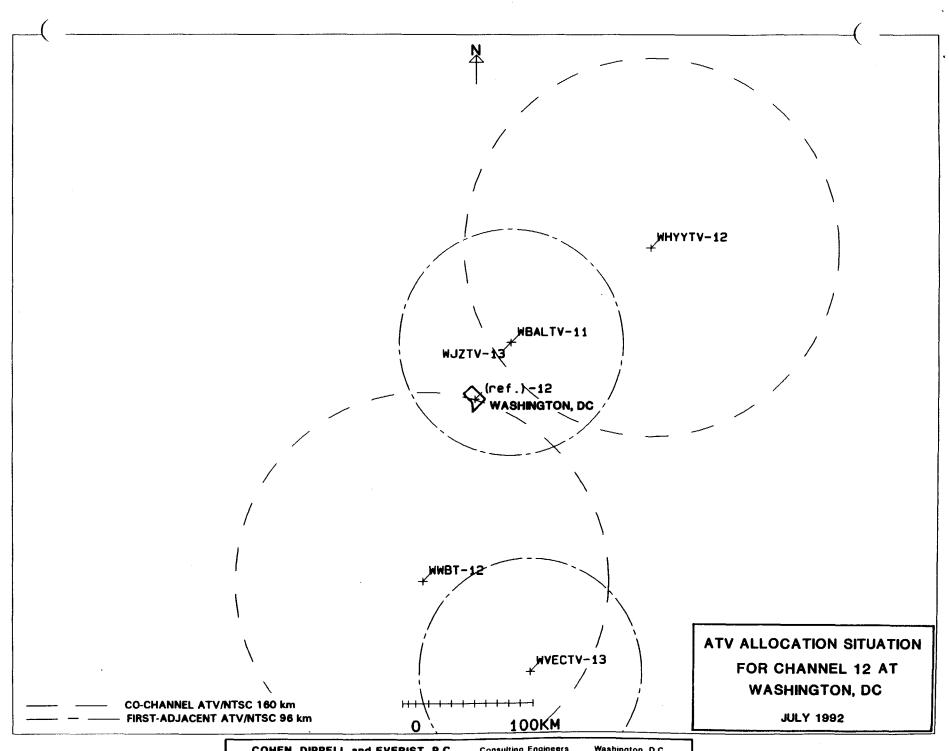
¹⁴United States NTSC stations and Mexican NTSC stations <u>and</u> allotments in the San Diego, California/Tijuana, BN, area exist on Chennels 6,8,10,12,15,21,27,33,39,45,49 (proposal), 51,57,67, and 69.

 $[\]frac{15}{\text{Refer}}$ to Section 76.53 of the FCC Rules for geographic coordinates.

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49, 57 and 67 are unused Tijuana and Tecate, Mexico allotments). On this basis, all eight San Diego/Tijuana NTSC stations could be allotted an ATV channel.



Consulting Engineers

Washington, D.C.

